A strife of interests: a qualitative study on the challenges facing oral health workforce policy and planning

Introduction

*"**Politics**, n. A strife of interests masquerading as a contest of principles. The conduct of public affairs for private advantage."*

Ambrose Bierce, 1906

Historically, dentistry has remained as a 'distinct' profession, separate from the mainstream health professions in education, regulation and practice [1–3]. Dentistry, like medicine, is a rewarding profession that attracts the top percentile of school leavers [4]. Career paths for dental graduates include private and/or public practice, specialisation or academia, with starting salaries among the highest across the health professions [5]. A range of regulations exist that cover accreditation, registration of dental and oral health practitioners, and practice oversight to ensure standards and quality care provision [6–8]. Dental practices have traditionally been biased towards the private sector in most countries, and payment mechanisms are not usually covered by mandatory national health insurance schemes that are more common for medical and hospital care [9]. The public safety-net in dentistry, where it exists in different countries, is limited to a small range of services usually offered to children, the poor and the aged [10]. Thus, none of the three dimensions of universal health coverage, i.e. improved population coverage, expanded service range, and reduced costs [11] are currently satisfied in dentistry.

The 21st century brings several challenges to the oral health workforce and the organisation of dentistry that requires thoughtful consideration and analysis, to enable the dental profession to fulfil its obligations to the society. Dental caries, periodontal diseases and tooth loss remain among the most prevalent conditions in the global burden of disease [12–15]. Oral health inequalities exist across and within countries, affecting vulnerable and disadvantaged groups [16,17]. Patterns of dental disease are changing, with clinical services aimed at prevention, diagnosis and restoration gaining some prominence [18]. Mid-level dental providers and new oral health workforce groups, capable of playing a role in health

promotion and prevention, are emerging, but with varied success [19,20]. Dentistry worldwide is facing a maldistribution of practitioners, with a large majority of dentists practising in urban and more affluent areas [21–23]. Cross-border migration of dental personnel has emerged as a major issue, requiring a re-examination of international competencies, education standards and regulatory practices [24]. Furthermore, there exists a general push towards a closer integration of oral and general health that is nowadays more visible both in national and global agendas [25–27].

Globally, efforts towards integration have been strengthened with the 2007 World Health Assembly ratifying oral health to be included under the chronic diseases programme [28]. A general acceptance of the link between oral and general health has not however translated into the service delivery and health workforce spectrum. Oral health in many countries is not covered or included as an essential package under mandatory universal health coverage [29,30]. Prior research has also highlighted an international neglect and lack of political priority in global oral health [31,32].

A better understanding of oral health workforce issues, considered by some as the foundation of oral health care, [32] can be argued as an important step towards addressing this neglect as well as progressing towards achieving universal health coverage in oral health. In recent years, the WHO Global Strategy for Health Workforce 2030 sets a novel agenda of collaborative efforts across professions, and argues for a governance approach and evidence generation for policy-making [33]. While, health workforce needs seemed to have gained importance, it is argued that policy making essentially remains as a 'piece-meal work' and does not seem to respond to underlying challenges and population needs [34]. In this environment, a better understanding of the various policy nuances, to steer the oral health workforce for the future is vital. Therefore, the aim of the study was to explore the challenges facing oral health workforce policy and planning and identify potential solutions.

Methods

A qualitative research strategy was adopted due to the underlying nuances, political origins, and deeper understanding required to address the study question. In general, qualitative methods are more appropriate in heuristic investigations and theory building (hypothesis generating) exercises, rather than traditional quantitative methods [35,36]. A grounded theory approach from the Straussian school of qualitative thought was employed in the study [37]. While the Straussian approach maintains the core assumptions of classical grounded theory as developed by Glaser and Strauss [38], it acknowledges the importance of paying attention to broader contextual factors that may impact the situation, and provides a set of tools/techniques for researchers to conduct such studies [39].

Sampling and selection of the participants

Owing to the 'high-level' nature of the study and the importance of participants having an extensive understanding and/or experience in health workforce policy and planning, only senior leaders across the globe were approached for participation [40]. A general description of a senior leader included at least 30+ years' experience in the field of oral health or health workforce policy, and/or have made a significant contribution that was internationally recognisable by peers. The first few participants were identified using professional networks (starting from the WHO European Region) and were retired distinguished personnel in the field of oral health and/or health workforce policy. A combination of purposive and snowball sampling was used to identify participants [37]. Two main streams of participants were targeted: (i) the academic professoriate and (ii) policymakers. Participants also included private practitioners and those working in global organisations – when they were recognised by peers as key personnel. Attempts were made to ensure a suitable gender-mix and participants well distributed across different regions of the world. Saturation of data was ensured through a maximum variation approach [41].

The interviewing process and data collection

An interviewing technique that recognised the key role played by participants and allowing them considerable scope to direct the pace of the interview was followed [40]. Questions were asked sparingly, to guide the discussion process. Overall, eight interviews (based in the WHO European Region) involved face-to-face discussions where the primary interviewer travelled to a location of the participant's choice for the interview. All others were conducted either via Skype video conferencing (n=12) or via telephone (n=3) by the primary investigator (MB). Two participants from the WHO African Region and one participant from the WHO Western Pacific Region were interviewed using telephone. Prior research has provided considerable evidence that interviews conducted via Skype video conferencing provide similar leverage as face-to-face interviews [42]. All interviews were recorded; field notes were taken during and immediately after the interviews. Audio interviews were transcribed and sent to participants for verification of the accuracy of the transcripts. The duration of the interviews ranged between 40 to 120 min. Six interviews were conducted in two sessions. All other interviews were completed in one session. The interviews were conducted between 2016-17.

Prior to the interview, participants were briefed on the researcher's intention to visit major challenges facing dental workforce policy and planning (both in national and global contexts). First there was a general discussion on the current state of oral health workforce, followed by the major oral health workforce challenges of the 21st century (see Annexure 1). The latter part included discussion on key issues such as dental education and training, skill-mix and scope of practice, teamwork, interprofessional collaboration, job market, growing privatisation, health professional migration, practice systems and integrated care approaches. These issues/prompts acted as a guide and were used mainly to assist the discussion process. Further, issues arising from earlier interviews were explored in the latter interviews, to assist the theory-building exercise. Discussions flowed freely to include not just the oral health

workforce, but the general health workforce. Participants were also asked to provide solutions to strengthen oral health workforce to address population needs, using country scenarios.

Qualitative data analysis

Grounded theory principles guided the qualitative analysis, through five steps. First, line by line analysis, [43] was employed by the primary investigator (MB) as a preliminary phase immediately following the interview (mainly to guide saturation of data) and to build proximity to the data after the completion of all interviews. Second, participant data were segregated into the various question-driven nodes to facilitate analysis of the combined responses towards key questions. In the next two steps, concepts emerging from the data were compared against each other in the constant comparison approach which is a key feature of the bottom up Grounded Theory analysis, to develop the emergent theory and subordinate/superordinate themes that supported or explained the theory [39]. In this stage, the data (i.e. quotes supporting a theme) from various participants were examined against each other to understand similarities and differences. The purpose of the exercise was to progress towards a more coherent and substantial explanation of the phenomena of interest [39]. In the fifth, and final, final step, the research team (JG, SDS and DB) were involved in critically examining the analysis process through peer-debriefing (to improve credibility of the study), which continued in a cyclic process until the underlying themes were refined [44]. Analysis was facilitated by using qualitative research software NVIVO 11 [45].

Ethical considerations

(Please note this sub section has been provided separately to the editor)

Results

A total of 23 senior leaders/elites participated in the study from 15 countries across the world. A majority were male (n=17). There was a good representation of non-dental personnel, leaders from global organisations, and retired personnel. Key participant characteristics are presented in Box 1. The findings are presented below as three subordinate themes and one superordinate theme, the latter being *a strife of interests.*

Figure 1 illustrates the underlying connections between the themes and a temporal understanding of the evolving theory. Annexure 2 provide further data to support the themes below.

A. Narrow approach to dental education and training

Dental education was recognised as vital towards the future of oral health workforce. Several arguments were raised to highlight the role of dental schools as "crucial in terms of what they [students] will do post-graduation." The effect of education extends to care provision and to the performance of the oral health system. A member of the professoriate stated:

> *"Others have used the example of a bicycle where the front wheel and back wheel have to be turning at the same speed and same pace; the front wheel is about services and the back wheel is about education. If they are not aligned, then you get a discord and you don't get service for the community. I suspect that the wheels aren't turning at the same speed or perhaps even going in the right direction." E17*

A narrow approach toward dental education was perceived to have siloed the system. With the ever-increasing costs of dental education (in many countries), dentistry seems to be favoured towards school leavers of a "very thin, narrow, socioeconomic stratum of society." Further, the rise of private colleges, mainly operating for profit, also means that graduates end up with "huge debts" and are forced to take "lucrative jobs to help pay this debt." Dental education seems more focused towards building technical skillsets than on diagnosis and

preventive skillsets. It was generally considered that greater technical focus raises the costs of dental education. A few arguments have been also raised that providers seem less interested to accommodate any serious change towards dental education as it drives profits and helps achieve "the bottom line."

A consistent issue across the interviews was the need for an interprofessional approach towards education, where students get exposed at an early stage to the broader health workforce and learn to appreciate "how their own contributions connect and intersect with others." It is argued that this will assist reducing the silos both in dentistry, and in other health professions.

B. Imbalances in skills, jobs and competencies

The majority of participants accept that the job market for dentists remains good, and that in many countries the elite nature and social status of the profession has not diminished. Most dentists "make a good living," and school leavers continue to be attracted to dentistry. However, arguments have been raised about imbalances in skills, jobs and competencies. First, a new situation seems to be emerging in many countries, where increased "credentialism" and educational inflation (i.e. an increased demand for higher qualifications) has led to "under-utilisation of skills." Second, the scope of practice of mid-level dental providers is limited and in a large number of countries (both developed and developing) there is very little support for expanding or even moving towards the recognition of skill-mix. As a dental elite member noted:

> *"I think there's room for everyone, it just has to done safely, effectively and efficiently. At the moment, I think in most places it's a little messy. And there are inconsistencies and they are largely politically driven rather than driven by matters of consideration of logic or need." E16*

Finally, all participants stressed the importance of teamwork and collaboration, both within the dental professional groups and across broader health professions. Working in teams was argued to also produce resources savings and contribute towards "quality of care."

C. Geographic maldistribution and health system deficiencies

Rural-urban maldistribution of dentists has evolved as an omnipresent issue challenging oral health workforce policy. Dentists appear to prefer working in "big city and urban areas," and if shortages in dental workforce arise, the rural areas stand most affected. While on one side of the coin, internal migration or movement of dentists towards the urban and affluent city areas is prevalent, on the other side an even more serious international migration of dentists has emerged as a prominent issue. A few also raised the importance of "the [WHO] Code" (for ethical recruitment of health personnel) while it's not mandatory for countries to follow, it seems to provide a mechanism to "reduce some of the negatives that potentially arise in that migratory flow process."

An evolving concern from the interviews is on how traditionally dentistry operates "in small offices" and functioning under "separate payment mechanisms" that has considerably broadened the divide of integrating with other healthcare professionals. As an elite member pointed:

"Dentistry is finding itself more in the periphery of the general healthcare system. And I think what is needed is for it to become truly integrated with the healthcare system." *E6*

Arguments for stronger integration of care emerged strongly in the analysis. A few technology innovations such as "electronic health records" may play a role to facilitate this integration, or new integrated care providers such as "hospital dentist or an advanced dental practitioner" were some examples provided in this direction that could facilitate better integration with the broader healthcare profession.

Overarching theme or worldview: *Strife of interests*

A *strife of interests* sheds light on the growing divide between the 'professions' interests, and the needs of the population. A key aspect exemplifying the professions interests is the clash for power, dominance and authority within the dental professional groups (within-strife) and between the dental and medical and other health professions (interprofessional strife). This overarching theme progresses our understanding towards deeper issues, arguing that a closer examination of this strife of interests is fundamental in moving towards effective oral health workforce policy and planning.

Within the fascinating dental division of labour, "all around the mouth," as a non-dental elite member described it, the most powerful groups (dentists and dental specialists) appear to be somewhat resistant towards expanding the skill mix and scope of practice of other oral health providers. A dental leader from the Western Pacific Region aptly sums up this challenge within the dental profession:

> *"I think the significant challenge is the profession itself. Where there's a hierarchical profession, and dentists are clearly seen at the top, and perhaps specialists above it, or at a similar level. But in terms of numbers, dentists clearly have a significant voice, and a significant lobby in terms of what changes actually can happen particularly for mid-level and what might be considered lower level [practitioners]."* *E18*

Furthermore, it seemed the controversy behind the division of labour within the oral health workforce is dependent on the level of substitution or complementarity allied dental providers (such as therapists of hygienists) bring to dentists. As an elite member of the professoriate group described this conflict as "dependent on the degree to which [other oral health providers] substituted for [dentists] and the degree to which they complement [dentists]." Therefore, oral health therapists, whose scope of practice seemed to overlap dentists' roles, were seen as a threat by dentists. At the core, dentists appear to closely protect

their interests, largely due to a perceived threat regarding their very livelihood. As a dental elite member from the European Region described:

"That's because the position that the model of dentistry involves doing things and getting paid for doing things and if somebody else does those things, then by extension the dentists doesn't, so he doesn't get paid and that threatens livelihood." E2

A closer examination on this 'protectionist' attitude of dentists provided insights that extended beyond the dental profession, to include the medical and other health professions. First, it appears that the dentist has been forced to focus on the lower end of treatment/practice spectrum and is not able to realise the full extent of the education s/he has gained. Several arguments have been raised for a dentist playing a more involved role in the broader health care, especially being an entry point for primary care. As an elite member from a global organisation argued:

"We should be encouraging dentists to be practising at the top of their skill set, that they're taking blood pressures at every dental visit, that they're counselling, smoking cessation, measuring haemoglobin, A1C [tests] for diabetic patients. Being more integrated into the medical community in terms of referring patients in both directions." E24

The concept of integration and collaboration among all healthcare professions seems to be dependent on a power struggle, especially on how the "mandates of different institutions or agencies and to what extent that may change or be threatened or expanded or limited by integration." This concept extended to include educational institutions, practice systems, public funding and organisations.

While many members of the dental elite were disappointed in the "siloed" dental profession "finding itself at the periphery of the general health care system" it also emerged that the reasons for the silo could be traced to the origins of dentistry, and how the mouth got

separated from the rest of the body. As a member of the professoriate from the American region summed this argument:

"The medical profession was trying to secure and become professionalised and secure its status… and having a linkage with dentists who were really considered to be lower class, barber-surgeons doing dentistry… It goes back to the roots in history about why these divisions of labour became separated." E23

The evolving theory seems to support the thesis that the health workforce (as a whole) is organised around professional interests and professional groups, rather than the needs of the population. As an elite female leader from the European region pointed out:

"If we would start with the needs of the population and then ask what kind of competencies we actually have, then we could have another distribution of health workforce." E11

While it was clear that in many countries, the governments were unable to move beyond professional interests, there seems to emerge a clear government/public "intent to free up the market, not to restrict it." As a dental member of the elite summed up "It's a long way to go yet, of course, but the ice has been broken."

Discussion

The study supports the thesis that recognition and improved understanding of the "strife of interests" is fundamental in developing more people-centred health workforce policies and thereby moving towards integrated policies and universal health coverage in oral health. We first discuss each of the subthemes, examining them against contemporary debates. Later we discuss the notion of strife of interests, the medical-dental divide and raise arguments for a governance approach to tackle oral health workforce policy and planning.

Our findings recognise the centrality of dental education towards a competent oral health workforce and for the provision of quality services. To date, the bulk of the dental school curricula have been devoted towards tooth restoration, alignment and replacement techniques [46]. This traditional model of dental education is consistently challenged with new evidence on the links between oral disease and other non-communicable diseases, [47,48] changing patterns of oral disease and treatment approaches [18]. A call for an "oral physician model" [49] with expanded training and scope of practice that extends beyond the traditional focus of teeth and supporting structures, [50] has gained some momentum, but such models will require support from the wider group of health professionals (medical, nursing and allied). Frenk & Chen *et al* (2010) in a landmark Lancet report on "transforming education to strengthen health systems" have raised the importance of interprofessional education that breaks down professional silos, while enhancing collaborative relationships in broader health care teams [51]. Reforms (instructional and institutional) are required that move towards competency-based curricula, accommodating transformative learning and interdependence across professional groups as key education outcomes [51,52].

Health equity and dental public health experts, [53] have emphasised the need for improved training in the social determinants of health; for example, dental students being able to take detailed social histories in their case notes [54]. A key extension of this argument is

support towards the education and training of mid-level dental providers who can take health promotion and prevention roles working in a dental team under the supervision of a dentist [54,55]. There is yet considerable work required on how newer oral health workforce groups fit in the broader framework of interprofessional education and collaborative practice with other health professional groups.

The expensive nature of dental education is argued to affect both school leavers wanting to pursue dental education and new dental graduates beginning to practise dentistry. While we recognise that this situation varies by country, [56–58] the availability of government financial support and private college tuition fees does play a major role. For example in the United States, the number of students receiving financial assistance in the form of loans is as high as around 90% [58]. New dental graduates could end up with huge financial debts that can effect career and practice decisions [59]. The privatisation of dental education and growth of new colleges, in the private sector, has emerged as a major issue, [60] especially in developing countries (such as India, Egypt and Indonesia), where several other health challenges and policy reforms exist . More country-related efforts are required to understand the effect of the privatisation of dental education, and whether it is able to produce a competent and people-centred dental workforce.

Our study provides some evidence of a new phenomenon, possibly due to increasing credentialism in dentistry, where dental/oral health students seek for education and higher credentials (such as degrees, certification, specialisation) yet practice well below their skill sets. It is not unusual to notice dental specialists perform the majority of the daily tasks of a dentist (or) dentists providing oral prophylaxis on a regular basis that could be very well be undertaken by mid-level providers (such as dental therapists or hygienists). In recent years, the concept of recognising the skill mix and scope of practice of mid-level dental providers has gained some traction [19–21,61]. The FDI [World Dental Federation's] collaborative practice document provides avenues to leverage the usefulness of dental teams [62]. Ongoing

international work will benefit if efforts in integration become mainstream to the debate, with focus on how clinical dental teams can work more closely with other medical, nursing or allied health teams, and more importantly in various practice settings such as hospitals, clinics, corporate and group practice settings.

We argue that health system deficiencies, especially within the payment and practice mechanisms of dentistry, could be tackled by the greater integration of oral health with general health. In a primary care setting clinical integration needs to emerge at a more micro level, [25,63,64] which focuses on improving the interdependence among dental, medical, nursing and allied health teams [50,65]. This could take approaches ranging from (i) dental teams conducting some routine medical functions such as diabetes screening, blood pressure checks, nutrition and health promotion counselling (ii) general practitioners/nurses involved in screening for oral diseases (iii) allied health professionals (e.g. speech pathologists, nutritionists) working closely with dental teams. Spielman et al. (2015), in a comparison of core competencies of medicine, nursing and dental students have found a significant overlap across professions, [66] thus opening opportunities for role modification that in turn could assist to tackle workforce shortages across the professions. New professional roles is also argued as a pursuable strategy, and is less likely to negatively affect patient satisfaction [67]. Our study also suggests the necessity of creating more defined roles for a dentist in acute settings - such as hospitals. With more support being generated for integrated care delivery systems, [6] we see opportunities for new workforce groups that promote both vertical and horizontal integration, as well as bringing the profession closer towards offering people-centred care. Similar approaches have been noted in the medical and nursing profession,

A novel pathway to facilitate collaboration across the health workforce is using health information technology [68,69]. Today, a number of clinical practices (dental, medical and allied) use some form of on-premise or cloud-based electronic health records (EHRs) to collect patient data [70–72]. Nevertheless, patient EHRs are largely run as separate ‘disjoint’

entities/systems that lack interaction [73]. EHRs also have the potential to reform education, through guiding students in developing comprehensive patient notes and carefully reflecting on patient diagnosis and management before treatment, ideally linking across health systems [70]. Support for work on health information technology is required, as EHRs bring together clinical information and has the potential to aid health workforce integration and interprofessional education.

While efforts towards integration are essential, it is prudent to recognise that such policies need to address the concerns of various health professional groups. In 2017, just six months after interviews were conducted for this study, the “La Cascada declaration” proposed a bold vision for dentistry [74]. A central argument of the La Cascada declaration is for dentistry to become “a specialism of medicine” like other medical specialities such as ophthalmology, dermatology and ENT. More importantly, it argues for expanding the mid/lower level providers, with emphasis on primary prevention integrated across other health and social sectors: with fewer dentists and specialists - often termed "inverting the pyramid" [74,75]. Our study has also identified some of these goals of the La Cascada declaration, but the approaches for achieving them were more conservative and progressive, rather than advocating a radical overhaul of dentistry.

The dental divide and the fascinating division of labour all around the mouth has been part and parcel of health workforce policies in most countries. Nevertheless, in a contemporary scenario, it is not unusual to see the status quo challenged. Sax (1984), in his widely acclaimed work “a strife of interests” - notices that new policy initiatives are often seen as a threat (by health professions, organisations or population groups), and thereby policy making in health care rather becomes an act in conflict management [76]. While Sax’s underlying thesis was mainly based on his work on national health insurance and hospital care, we see similar parallels emerging in oral health workforce and dentistry. The notion of interests is one of the most important conceptions in the study of health policy. Palmer and

Short (2015) argue that 'interests' stakeholders bring to policy development underline every academic perspective in health policy analysis [77].

Our study notes that the medical and dental professions have maintained distinct professional identities, whilst also having the social status and power to block or slow down policy proposals that challenge the status quo - supporting the professional dominance theory as raised in the work of Larson (1977) and Abbott (2001) [78,79]. Based on Lukes (1974) theory of power, it is reasonable to assume a governance approach towards policymaking as a logical way forward [80]. Kuhlmann & Larson (2015) have argued for a multilevel health workforce governance the connects organisational and professional dimensions of workforce governance [34]. Gallagher (2015) also identifies that a governance approach provides an all-inclusive strategy to enforce appropriate standards in oral health education and dental care, but it is also possible that it could have unintended consequences [81]. In general, a governance approach requires facilitating streamlined pathways for collaboration across all stakeholders (government, profession, administrators and general public/consumers) that are both transparent as well as accommodate evidence and ongoing concerns [82,83]. As the forces of change become stronger, and as evidence accumulates, one could realise an evolutionary pathway within the confines of power, authority and politics. To date, our findings provide the strongest indication that the oral health workforce and dentistry are at a serious juncture.

Limitations

Elite interviews were used as a means of collecting data for the study [40]. We included both professional and positional elites, who brought high-level expertise in the field. However, a large proportion of the elite were based from the WHO European and American Regions. While lack of representation of participants from the WHO South Asian and Middle Eastern regions is noticeable, it is argued that participants included in the study also spent

considerable periods of time in their professional career working in different regions of the world, which could compensate for the lack of uniform participation from all regions. A large majority of the interviews were conducted in 2016. We notice that the time lapse between the interviews and the analysis or study completion is unlikely to have led to any major change in the underlying theory, as the challenges facing oral health workforce policy seem to have existed for a considerable period of time. By including a heterogeneous sample, we were able analyse the discourse from a wide variety of people. Saturation of the concepts was achieved, [41] and both supporting and opposing views informed the development of the theory. It should be also noted that the study did not include medical and other health personnel, therefore the examination of medical-dental divide is not complete, as it does not fully reflect the views of medical personnel. However, it is argued the participants for the study also include senior health policy personnel and renowned sociologists, who had considerable understanding on health workforce challenges, and how integration of oral health with general health can be achieved. Readers should exercise caution in generalising the findings to different contexts as qualitative research is mostly exploratory with findings more suggestive in nature [44]. Due to the theory building nature of the study, it is expected that further research is required to test the various empirical explanations of the study.

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Conclusion

In the current scenario of increasing challenges and forces for integration, it is not unreasonable to predict that the oral health workforce is at a crossroads. This study argues that appreciating the history of the health professions and recognising the centrality of the strife of interests within and between health professional groups is necessary in developing policies that both address professional sensitivities and are in line with the needs of the population. Integration and closer collaboration with the mainstream medical and health professions has emerged as the key issue, but the solutions will be diverse and dependent on country-specific scenarios. The dental profession by itself is less likely to enable change - a collaborative effort is necessary from all health professional groups and in all constituent elements such as education, regulation and practice.

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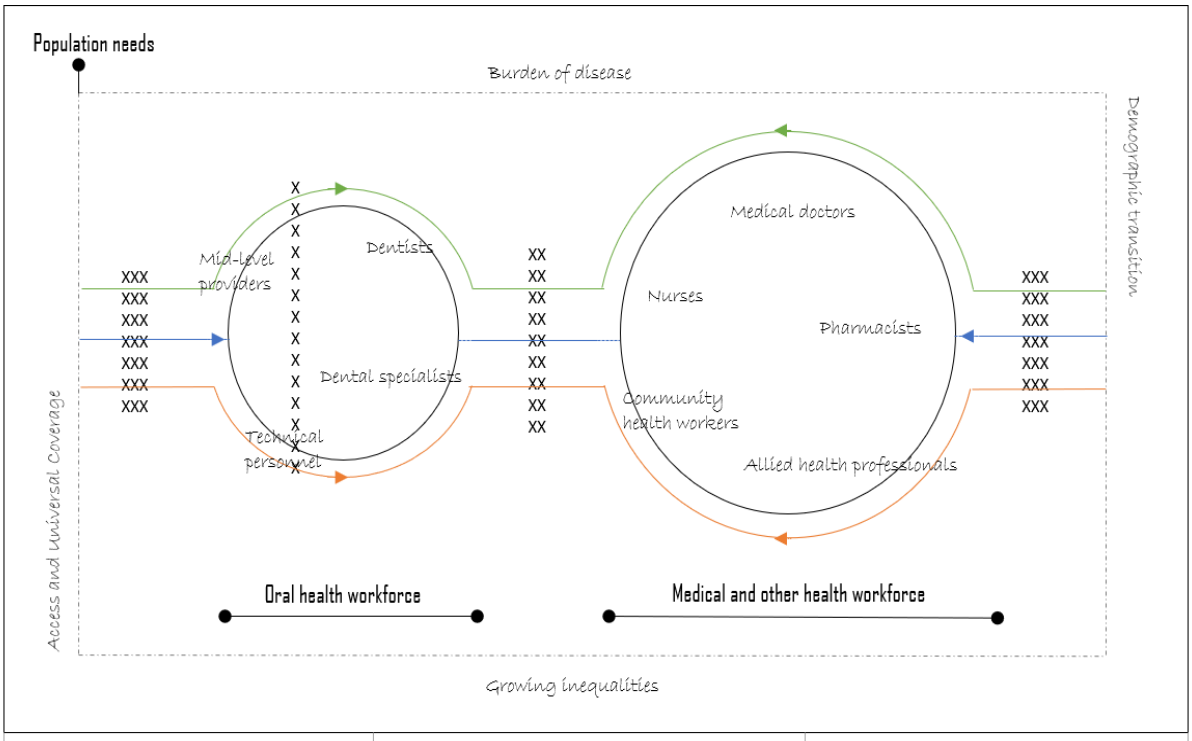
Box 1: Participant characteristics

Sex:	Female (6); Male (17)
Country of residence*:	Australia (2); Brazil (1); Canada (1); China (1); Congo (1); Denmark (1); England (2); Germany (1); Netherlands (3); New Zealand (1); Qatar (1); Scotland (1); Switzerland (2); Uganda (1); United States of America (4)
WHO Regions*:	African Region (2); American Region (6); Eastern Mediterranean Region (1); European Region (10); Western Pacific Region (4)
Qualification†:	Dental (17); Non-dental (6)
Place of work:	Global organisation (8); University-based (15)
Work type:	Senior leader or policy maker (7); Professoriate (16)
Work status:	Retired (4); Non-retired (19)

*Country of residence and WHO Regions are based on the primary country the participant resided and worked/lived.
† Qualification was based on the primary qualification obtained by the participant.

Figure 1: A strife of interests



Green line: Subordinate theme 1 Narrow approach to dental education and training	Blue line: Subordinate theme 2 Imbalances in skills, competencies and jobs	Orange line: Subordinate theme 3 Geographic maldistribution and health system deficiencies
1. Student selection	1. Skill-mix imbalance	1. Rural – urban maldistribution
2. Need for interprofessional education	2. Team work & collaboration challenges	2. Migration & cross country maldistribution
3. Privatisation of dental education	3. Job market & attraction	3. Practice silos
4. Rising costs of dental education & training		4. Endemic dental system challenges

Note: Single **'x'** mark represents the strife within the dental professional groups; Double **'xx'** mark represents the strife between the dental profession and the medical, and other health workforce groups; Triple **'xxx'** mark represents the strife between all health professions as a whole and the population